ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

ORIGINAL
FILE

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| In the Matter of | ) | |
| | ) | |
| Redevelopment Of Spectrum | ) | ET Docket No. 92-9 |
| To Encourage Innovation | ) | |
| In The Use Of New | ) | |
| Telecommunications Technologies | ) | |

TO: The Commission

**REPLY COMMENTS OF**
**AMERICAN PERSONAL COMMUNICATIONS**


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July 8, 1992

## SUMMARY

The record in this docket now contains the essential elements of a resolution that will meet fully the needs of new technologies such as personal communications services ("PCS") as well as the needs of incumbent microwave users in the 2 GHz band. Incumbents express three legitimate concerns: frequencies for point-to-point microwave communications should be available; those frequencies should be sufficiently reliable; and the cost of relocations should be borne by a party other than the incumbent. The proposal of American Personal Communications ("APC") and the Telocator consensus position meet fully incumbents' objectives of availability, reliability and cost:

First, effective interference protection will be required by the Commission's rules. This will ensure that incumbents can continue to operate reliably.

Second, no incumbent would be required to relocate unless requested to do so by a PCS licensee. Incumbents that are not asked to relocate could remain in the 2 GHz band.

Third, a PCS licensee asking an incumbent to relocate would be required to demonstrate that reliable alternative facilities are available to accommodate the incumbent. If technical reasons prevent the incumbent from relocating, the incumbent could remain in the 2 GHz band.

Fourth, the PCS licensee would bear the costs of relocating the incumbent microwave user.

Fifth, if the parties cannot agree privately on an appropriate transition plan, the parties could turn to a Commission expert or an arbitrator selected by the parties to resolve any disputes that exist.

Finally, the new facilities would be tested and operational before the incumbent relinquishes its 2 GHz frequencies. If the new facilities cannot be made acceptable by the good-faith engineering efforts of both parties, the incumbent could continue to use 2 GHz frequencies.

The APC proposal and the Telocator consensus position permit new technologies such as PCS to be implemented in the 2 GHz band and effectively protect the legitimate interests of incumbent microwave users. The "win-win" resolution represented by APC's proposal and the Telocator consensus position should be adopted.

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TO: The Commission

**REPLY COMMENTS OF**
**AMERICAN PERSONAL COMMUNICATIONS**

American Personal Communications ("APC")[1/] replies to certain comments filed in response to the Notice of Proposed Rule Making (the "Notice") in the above-referenced docket to designate the 1.85-1.99, 2.11-2.15, and 2.16-2.2 GHz bands (the "2 GHz band") for new technologies.

## I. THE APC AND TELOCATOR PROPOSALS MEET FULLY THE LEGITIMATE NEEDS OF INCUMBENT USERS THAT HAVE BEEN EXPRESSED IN THIS DOCKET.

The record in this proceeding contains the essential elements of a resolution that will meet fully the needs of new technologies such as personal communications services ("PCS")[2/] as well as the needs of incumbent microwave users in the 2 GHz band. Incumbents express three legitimate concerns

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[1/] American PCS, L.P., d/b/a American Personal Communications, a partnership of American Personal Communications, Inc. and The Washington Post Company.

[2/] As the term "PCS" is used in these Reply Comments, it is meant to denote carrier-provided PCS as APC has proposed. See APC, Petition for Rule Making (filed May 3, 1991).

that should be taken into consideration: sufficient frequencies for point-to-point microwave communications should be available; those frequencies should be sufficiently reliable; and the cost of relocating to those frequencies should be borne by a party other than the incumbent. APC's proposal and the Telocator consensus position -- which was the result of negotiations between more than 80 PCS proponents and scores of 2 GHz incumbent licensees -- meet fully incumbents' objectives of availability, reliability and cost.[3/] Under APC's proposal and the Telocator consensus position, new technologies such as PCS can be implemented in the 2 GHz band without harming the legitimate needs of incumbent users.

First, PCS can be authorized in the 1.85-1.99 GHz band under effective interference-protection criteria.[4/] PCS licensees and incumbent microwave users will be required to operate without causing harmful interference, ensuring that

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[3/] APC supports the Telocator consensus position, which was filed at the Commission on June 8, 1992. The Telocator position generally is consistent with APC's proposal for implementing PCS. See, e.g., APC, Comments (Gen. Docket 90-314, October 1, 1990); Petition for Rule Making and Proposed Rules (May 3, 1991); En Banc Statement of J. Barclay Jones (Gen. Docket 90-314, November 21, 1991); APC, Supplement to Petition for Rule Making and Proposed Rules (May 4, 1992).

[4/] APC has proposed sharing criteria that provide interference protection to incumbent users as effectively as TIA Bulletin 10-E provides for their current sharing of the 2 GHz band with other microwave users. See APC Rule Making Supplement at 17-20, Attachment A at A-8 to A-10 (proposed Section 22.2003) & Attachment B (sample calculation). APC has discussed its proposal with representatives of incumbent users and is modifying it to take into account their comments.

incumbent users that remain in the 2 GHz band will operate reliably.

Second, no incumbent user would be required to vacate the band unless asked to do so by a PCS licensee. Those licensees that are not asked to relocate could continue to operate in the 2 GHz band.

Third, when a PCS licensee does ask an incumbent user to relocate, the PCS licensee would be required to demonstrate that reliable alternative facilities are available to accommodate the incumbent's needs.[5/] If reliable alternative facilities are not available, the incumbent user would be permitted to remain in the 2 GHz band. For example, very long paths over water -- such as a long path over Puget Sound or certain paths over the Gulf of Mexico -- could remain in the 2 GHz band indefinitely. APC believes that the paths that must remain in the 2 GHz band for technical reasons will

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[5/] Comsearch, a party with extensive spectrum-management experience, has found that "there is sufficient spectrum available in the other fixed microwave bands above 3 GHz to accommodate users currently in the entire 1.85-2.20 GHz band." Comsearch Comments, p. 2. This result is consistent with the study by the Office of Engineering and Technology ("OET") that underlies the Notice. In addition, the Commission is considering two petitions for rule making that include some proposals that could open up even more frequencies for private operational microwave use. See Alcatel Network Services, Inc., Petition for Rule Making (RM-8004); Utilities Telecommunications Council, Petition for Rule Making (RM-7981). Regardless of the outcome of these petitions, the findings of OET and Comsearch demonstrate that sufficient alternative frequencies now exist to accommodate the fairly limited number of 2 GHz incumbents that APC expects will be asked to relocate (or, indeed, to accommodate the entire population of the 2 GHz band).

be, however, quite small in number and may be largely in areas in which other frequencies in the 1.85-1.99 GHz band will be available for providing PCS service.

Fourth, the PCS licensee asking the incumbent user to relocate would be required to bear all costs of the relocation.[6/] By focusing on reimbursement of costs rather than on the creation of an open market in 2 GHz frequencies, the Telocator and APC proposals ensure that incumbents will receive full payment for their costs of relocating, when necessary, rather than some negotiated portion less than full reimbursement. A focus on cost reimbursement also ensures that incumbent users with highly demanded spectrum will not be able to extract windfall profits from new licensees by exploiting monopoly rights in a public resource,[7/] which could

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[6/] See APC, Supplement to Petition for Rule Making (filed May 4, 1992) at 11-16 & Attachment A at A-26 to A-28 (proposed Section 22.2022). APC's detailed proposal is consistent with the standards the Commission already has crafted in its ITFS Second Report. See Amendment of Parts 21, 43, 74, 78 & 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands, Second Report & Order, 6 F.C.C. Rcd. 6792 (1991). The Utilities Telecommunications Council ("UTC") has endorsed these standards as well. See UTC, Recommended FCC Action Plan for Accommodating New Technologies (filed ex parte in this docket, April 1992).

[7/] See APC Comments, p. 16 n.31; United Telephone Companies Comments, p. 8-9; see also Telephone & Data Systems, Inc. Comments, p. 8; Rochester Telephone Corp. Comments, p. 2; Ameritech Comments, p. 8. As the National Telecommunications & Information Administration points out (Comments, p. 14):

> In these circumstances, existing users could, in effect, have monopoly-like control over access to spectrum that may be critical to the new users, a situation that could make negotiations with new

delay the implementation of new technologies and prevent small businesses and entrepreneurial firms from participating in new technologies.[8/] Commission guidance on specific costs to be taken into account will, moreover, provide a structure that will facilitate voluntary negotiations.[9/]

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> users more difficult. In some cases, an existing user operating on spectrum of extreme importance to a new user might choose to 'hold out' in an attempt to extract all the economic value of the new license. In other cases, an existing user might choose to simply not negotiate, thus limiting or prohibiting the development of the new service.

[8/] Perhaps not coincidentally, several parties in favor of creating an unrestrained "free market" in spectrum are the largest entities on the American telecommunications landscape. See, e.g., AT&T Comments, pp. 6-7; Southwestern Bell Corporation Comments, p. 21; BellSouth Corporation Comments, p. 6; GTE Service Corporation Comments, p. 22.

[9/] UTC incorrectly argues that the Commission required direct broadcast satellite ("DBS") licensees to pay relocation costs to incumbent terrestrial microwave users operating in the 12 GHz band when the Commission authorized DBS service. In Inquiry into the Development of Regulatory Policy in Regard to Direct Broadcast Satellites, 90 F.C.C.2d 676 (1982), aff'd in part sub nom. National Ass'n of Broadcasters v. Federal Communications Comm'n, 740 F.2d 1190 (D.C. Cir. 1984), the Commission instituted a five-year transition period during which microwave users licensed prior to the Commission's cut-off date were not required to protect DBS reception from interference. The Commission suggested that DBS operators may wish to accommodate existing terrestrial microwave users by "agreements with the terrestrial station operators, adequate replacement of terrestrial equipment, or the development of DBS receiver equipment capable of providing acceptable service in the [fixed microwave service] environment . . . ." Id. at 702 n.60. The Commission expressly refused to require DBS operators to pay the costs of relocating existing microwave users, noting only that "that DBS operators would have a strong incentive to compensate the [microwave] users for the costs of moving to other frequency bands during this period." Id.

Fifth, if the parties cannot agree upon an appropriate transition plan, a Commission expert -- such as a staff attorney or engineer, administrative law judge or alternative dispute resolution specialist -- or an arbitrator selected by the parties could resolve expeditiously any disputes that exist.

Finally, the new facilities must be tested and operational before the incumbent relinquishes its 2 GHz frequencies. If the new facilities are unacceptable and cannot be made acceptable by reasonable, good-faith engineering efforts on behalf of both parties, the incumbent could continue to use 2 GHz frequencies.

APC's proposal and the Telocator consensus position meet fully and effectively each of incumbents' objectives of availability, reliability and cost. Although certain incumbents would prefer no change at all in the services authorized in the 2 GHz band, the comments of the Department of Energy,[10/] the Edison Electric Institute,[11/] the American

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[10/] The Department of Energy suggests that "adequate replacement frequencies with appropriate technical characteristics" be made available for relocated 2 GHz incumbent users, that an "adequate transition period" be permitted, and that "fair cost reimbursement" be required. Department of Energy Comments, p. 5.

[11/] The Edison Electric Institute ("EEI") asks that ample replacement frequencies for 2 GHz incumbent users be located prior to relocation of incumbent users, that reliable telecommunications facilities continue to be available for utilities, and that cost reimbursement be "meaningful and realistic." EEI Comments, pp. 20-23.

Public Power Association,[12/] the National Rural Electric Cooperative Association,[13/] the American Petroleum Institute ("API"),[14/] and the Large Public Power Council/Association of American Railroads[15/] all indicate that the proposal outlined above, if embodied in specific rules, should meet incumbents' legitimate needs. The reasonableness of this approach is

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[12/] The American Public Power Association ("APPA") proposes "indefinite co-primary status" for new technologies and incumbent licensees and suggests that the Commission resolve disputes between new and incumbent licensees if voluntary negotiations fail. See APPA Comments, p. 20.

[13/] The National Rural Electric Cooperative Association ("NRECA") supports spectrum sharing between PCS and microwave licensees, NRECA Comments, p. 5, suggests a "co-primary" allocation for PCS and microwave services, id. at 7, and is concerned primarily about reliability of replacement facilities and costs to incumbent users, id. at 6-7, 3-4.

[14/] The American Petroleum Institute ("API") asks that 2 GHz incumbents be permitted to continue in their current status and notes that "the process of negotiations between PCS proponents and existing users of the spectrum can proceed in a manner that is equitable to all parties concerned." API Comments, p. 30 n.30. API agrees that the Commission should resolve "individual cases in which the PCS proponent and a microwave licensee are unable to reach agreement on the appropriate level of reimbursable relocation costs," perhaps through alternative dispute resolution procedures. Id.

[15/] The Large Public Power Council ("LPPC") and the Association of American Railroads ("AAR") argue that the availability and reliability of alternative frequencies must be demonstrated prior to any reallocation and that full compensation for relocation must be guaranteed. See LPPC Comments, pp. 35, 41; AAR Comments, pp. 35, 42. Both parties claim a "contradiction" between APC's claim that it can share the 2 GHz band with incumbent microwave users and APC's support of a requirement that PCS licensees bear any relocation expenses that are necessary. See LPPC Comments, pp. 5-6, 43; AAR Comments, pp. 4-5, 44. No "contradiction" exists. APC believes that most incumbents will not be required to move but has proposed that PCS licensees reimburse relocation expenses of any incumbents that are relocated.

underlined by the courageous and forward-looking comments supporting this docket filed by major 2 GHz incumbents such as Baltimore Gas & Electric Company.[16/]

In all, the record in this docket supports the "win-win" resolution that is represented by APC's proposal and the Telocator consensus position. It should be adopted.

* * *

Standing apart from all other incumbents, the Utilities Telecommunications Council ("UTC") now claims that PCS and other new technologies should be authorized on a "conditional" and "secondary" basis in the 2 GHz band, if at all.[17/] This position is a significant change in position for UTC, which previously had urged the Commission to "provide for indefinite co-primary status for all existing 2 GHz microwave systems" and to "provide for an involuntary relocation program" under which 2 GHz licensees could be required to vacate the band if voluntary negotiations were to fail.[18/] The sole basis for UTC's "conditional secondary status" position is the entirely reasonable concern that incumbent

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[16/] San Diego Gas & Electric Company and the City of San Diego also filed comments generally supporting this docket.

[17/] See UTC Comments, pp. 72-73 ("any 'new technology' systems authorized in that band will be licensed only on a conditional secondary basis during the initial license term").

[18/] UTC, Recommended FCC Action Plan for Accommodating New Technologies, pp. 1-2 (filed ex parte in this docket, April 1992). UTC stated that its "involuntary relocation program" would only commence after 10 years, but stated no public interest reason in favor of a 10-year waiting period.

users be protected effectively against receiving harmful interference from new technologies.[19/] UTC's legitimate concern that incumbent microwave users be protected from interference can be met fully by the crafting of effective interference protection standards under which PCS licensees will be required to protect incumbent microwave users from interference.[20/] UTC's proposal to relegate PCS to "secondary" or "conditional" status is unnecessary and unsupported, and would prevent PCS and other new technologies from being inaugurated at all.[21/]

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[19/] As UTC explains its "secondary" status proposal (UTC Comments, pp. 72-73):

> That is, during the first 5 years a new technology licensee is authorized to use spectrum from the spectrum reserve, it must afford full and unconditional interference protection to existing facilities licensed on a primary basis. If, at the end of the initial license term (assumed to be at least 5 years), there are no unresolved interference problems, the new technology licensee could request co-primary status.

[20/] See supra n.4. Regardless of whether the specific sharing criteria proposed by APC or some variant on APC's approach is adopted in the PCS rule making docket, there can be no question that the Commission will not introduce a new service into frequencies occupied by existing services without providing for effective interference protection to incumbents.

[21/] As the Commission and any party with experience in providing new telecommunications services will readily understand, few businesses could be expected to provide a service that would expire in five years unless incumbents agree that it should be granted co-primary status (especially when the demands of the particular incumbent group in question change radically within the space of months). Additionally, a new service that is "conditional" and "secondary" would not garner the support of the financial community. With per-market costs of building PCS systems estimated in seven to eight digits, significant financial support will be necessary

## II. OTHER ISSUES

### A. The Location of the Reserve

Several commenters question whether the 2 GHz band is an appropriate location for PCS and other new technologies. API states, for example, that "from a mobile services propagation standpoint there is no 'magic' to spectrum in the 1-3 GHz range."[22/] As APC has found in its authoritative research into signal propagation characteristics in the 2 GHz band, however, technical reasons do support reliance on 2 GHz frequencies for PCS.[23/] Frequencies higher than 2 GHz would be inappropriate for PCS services because propagation losses at higher frequencies are substantially greater. New technologies rely on low power levels so that handsets can be very small. If higher frequencies are used, additional power would be required to overcome increased propagation losses. Handsets would become much larger -- defeating the purpose of new portable services -- or capital expenditures would increase drastically to reflect the thousands of additional base stations that would be required to configure a system --

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for all PCS proponents. If that support is unavailable, an allocation for PCS would be a worthless gesture.

[22/] API Comments, p. 6.

[23/] As APC has reported to the Commission based on its experimental efforts, 900 MHz frequencies are insufficient for PCS. See APC, Petition for Rule Making (May 3, 1991).

defeating the purpose of bring affordable portable services to the consumer.[24/]

New technologies also cannot feasibly be located in the 2.50-2.69 GHz band, which now is used to provide "wireless cable" service to nearly 500,000 subscribers by multichannel multipoint distribution systems ("MMDS").[25/] MMDS is a point-to-multipoint service, unlike the point-to-point services authorized in the 2 GHz band. This is a critical distinction. New technologies cannot "engineer around" MMDS licensees because MMDS licensees broadly serve entire communities. Band clearing would be necessary. Relocation of existing wireless cable systems would require replacement of subscriber equipment in thousands of homes. As a practical matter, relocating MMDS licensees to different frequency bands (which may not, in any event, be technically feasible) could fatally undermine consumer confidence in MMDS and eliminate its potential to compete against conventional cable television.

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[24/] See APC Comments, p. 9 n.19.

[25/] See id., p. 12 n.21.

International considerations also provide support for a 2 GHz allocation.[26/] Overall, frequencies at 2 GHz are necessary for new technologies such as PCS.

B. The Need For a New Technologies Allocation

APC was surprised that some parties still question whether sufficient demand exists for new telecommunications services.[27/] APC's market research, as well as that of every party that has investigated demand for PCS, supports a substantial allocation for PCS.[28/] As but one example, the research of Arthur D. Little, Inc. finds that PCS will serve more than 60 million subscribers in the United States within the next 10 years (almost 10 times the size of the current

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[26/] See id., pp. 9-10. The fact that certain protocols may differ in the European Community and elsewhere does not affect the basic fact that the essential transmission characteristics of 2 GHz equipment will be similar enough to create significant economies of scale. American service providers also can gain a foothold in the international marketplace only if their experience is relevant to the manner in which PCS is being implemented in the rest of the world. Any position taken by the United States in preparation for the 1992 World Administrative Radio Conference is irrelevant to the ultimate result of the conference -- which was a worldwide PCS allocation at 2 GHz. And, of course, the U.S. economy would suffer if we wait (perhaps in vain) for PCS and other new technologies to be technologically feasible at very high frequencies.

[27/] See Southwestern Bell Corporation Comments, p. 3 (claiming that the "record" does not support a 220 MHz reserve); GTE Service Corporation Comments, p. 6 ("demand should be substantiated" before an allocation is made).

[28/] See, e.g., APC, Seventh Progress Report, pp. 8-11 & Appendix IV (FCC File No. 2056-EX-ML-91, filed April 28, 1992).

cellular market) and will generate $30-40 billion in basic service revenues (one-half the current revenue stream of all telephone companies combined).[29/] Motorola, Inc. estimates that PCS will be a $195 billion industry worldwide by the close of the next century. Our major industrial competitors in the European Community and the Pacific Rim certainly have not questioned the demand for new telecommunications technologies and are moving ahead rapidly. The demand for PCS cannot be denied, and that demand provides a basis for the Commission's proposals in this docket.

### C. New 2 GHz Microwave Paths

The Commission has formulated an exceptionally liberal policy for permitting new microwave paths on a co-primary basis in the 2 GHz band during this proceeding.[30/] This policy meets the needs of incumbent microwave licensees that may have been planning system additions or modifications prior to the release of the Notice. It would be a mistake, however, to license freely new 2 GHz microwave paths after the completion of this proceeding, as some incumbent groups

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[29/] See Arthur D. Little, Filing to the Federal Communications Commission En Banc Hearing on Wireless Personal Communications (Gen. Docket 90-314, filed December 5, 1991).

[30/] See Two Gigahertz Fixed Microwave Licensing Policy, Public Notice 23118 (May 14, 1992).

demand.[31/] The significant amount of spectrum that now is available for implementation of PCS in the 2 GHz band represents a fragile balance that would be undermined entirely by the licensing of additional 2 GHz microwave paths. Open licensing of new 2 GHz paths after the close of this proceeding would result directly in a greater number of incumbent users that would be required to relocate to accommodate PCS. It also would raise the specter of speculation in, and warehousing of, valuable 2 GHz frequencies. Such a policy would be counterproductive and would serve neither the interests of the PCS industry nor the legitimate interests of the incumbent community.[32/]

* * *

The record in this docket supports a resolution that will effectively protect the legitimate needs of incumbent 2 GHz microwave users while paving the way for important new communications technologies. Such an approach should be adopted to permit American consumers and the United States

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[31/] See, e.g., Public Safety Microwave Committee Comments, p. 4 (public safety licensees should be permitted to "switch frequencies" within the 2 GHz band).

[32/] Several parties raise issues relating to the licensing process for PCS. See, e.g., AT&T Comments, pp. 6-7 (proposing private licensing by purchasing spectrum from incumbents); API Comments, p. 33 (suggestion that PCS be confined to urban areas); Public Safety Microwave Committee Comments, p. 23 (suggesting "mandatory transmitter identification" requirement to identify any interference sources). These issues are raised prematurely in this docket and should be considered, if appropriate, in proceedings resulting from a PCS Notice of Proposed Rule Making.

economy to benefit from highly demanded new telecommunications services.

Respectfully submitted,

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